REMARKS

The February 7, 2008 Official Action states that Claims 61 through 78 are narrower than U.S. Patent No. 5,883,732 (Takada, et al.) Claims 1 through 13 because Claim 61 contains the term "rotationally" and thus is "narrower" than the patent claims which do not contain that term, and thus there is no interfering subject matter. Applicant respectfully traverses this statement.

Applicant respectfully submits that when properly construed, Takada, et al.'s claims do require "rotational" asymmetry, even though they do not explicitly use that term. In particular, Applicant respectfully submits that Takada, et al.'s claimed expression "wherein the curvatures in the main and sub-scanning directions are non-symmetrical with respect to the optical axis" would have been understood by the artisan to refer to the **same** form of rotational asymmetry recited in Claim 61, namely that the curvature in the main scanning direction is *not equal to* the curvature in the sub-scanning direction. See the remarks in the July 26, 2005 and September 7, 2006 Amendments.

In particular, as discussed in the July 26, 2005 Amendment After Final Rejection, Applicant would like to present the following discussion of rotational and plane (line) asymmetry, in which the paragraphs have been numbered for ease in referring to the same hereinbelow and in which reference is made to the Sketches A through S attached to that Amendment:

(P1) Sketch A is a perspective view of a lens. Sketch B is a copy of Sketch A and is intended only to indicate one surface (incident side surface) of the lens by halftone dots. Sketch C is a copy of Sketch A and is intended only to indicate the other surface (emergent side

surface) of the lens by halftone dots. The symmetricalities will be explained referring to the sketches.

(P2) In Sketch A, it is assumed that the lens is placed horizontally for each understanding, that is, the beam scans in the horizontal plane. Therefore, the curvature in the main scanning direction is represented by the curved line extended at the vertically middle position, and the curvature in the sub-scanning direction is represented by the substantially vertically curved line. The same applies to the lens surface at the emergent side.

(P3) Referring to Sketch D, a rotational symmetricality is shown on the emergent surface of the lens. When the vertical curved line (the curvature in the sub-scanning direction) at the emergent side, for example, is rotated about the optical axis by 90 degrees, and the vertical curved line completely overlaps the horizontal curved line (the curvature in the main scanning direction), then these lines are rotational only symmetrical with each other.

(P4) Referring to Sketch E, a rotational non-symmetricality is shown. When the same rotation is made, the vertical curved line does not completely overlap the horizontal line.

(P5) It will be understood that specifying an axis of symmetry only is enough to clearly define rotational symmetricality, as contrasted to the case of line symmetricality or plane symmetricality, which will be discussed hereinafter.

(P6) The line symmetricalities will be explained in Sketches F and G. Referring to Sketch F, the right half of the horizontal curved line is indicated by a broken line, and the left half thereof is indicated by a chain line. These lines and the optical axis are all in the horizontal plane. When the right half of the horizontal plane is folded along the optical axis onto the left half of the horizontal plane, if the right half of the horizontal curved line overlaps the left half of the curved line, then the right half of the horizontal curved line is line-symmetrical with the left half of the horizontal curved line.

(P7) Referring to Sketch G, the upper half of the vertical curved line is indicated by a broken line (indicated on the emergent side for easy understanding), and the lower half thereof is indicated by a chain line. These lines and the optical axis are all in the horizontal plane. When the upper half of the vertical plans is folded along the optical axis onto the lower half of the vertical plane, if the upper half of the vertical curved line completely overlaps the lower half of the vertical line, then the upper half of the vertical curved line is line-symmetrical with the bottom half of the vertical curved line.

(P8) The line symmetricalities will be explained in Sketches H and I. Referring to Sketch H, when the right half and the left half are mirror images of each other assuming that a mirror is placed along the vertical plane including the optical axis, as indicated in the sketch, the right half and the left half are plane-symmetrical with

each other, with respect to the mirror surface which represents the center plane of the plane symmetry. Referring to Sketch I, when the upper half and the lower half are mirror images of each other assuming that a mirror is placed along the horizontal plane including the optical axis, as indicated in the sketch, the upper half and the lower half are plane-symmetrical with each other, with respect to the mirror surface which represents the center plane of the plane symmetry.

(P9) It will be understood that when the plane symmetry is stated, the reference plane (the center plane) should first be defined, that is, the position and the inclination of the "mirror" should first be defined. If the inclination is changed, the symmetricality does not exist even if the configuration of the lens is the same.

With the foregoing introduction in mind, the Takada, et al. Claim 1 recitation ("wherein the curvatures in the main and sub-scanning directions are non-symmetrical with respect to the optical axis") must be properly construed. Applicant respectfully submits that the artisan would have understood it to refer to a form of rotational asymmetry, i.e., the curvature in the main scanning direction is not equal to the curvature in the sub-scanning direction, and not to plane asymmetry. In support of this conclusion, Applicant filed with the July 26, 2005 Amendment After Final Rejection a 2nd Declaration of Duncan T. Moore, and Applicant advances the following four points:

(1) Applicant respectfully submits that the language of the claim itself suggests that a form of rotational asymmetry is intended. The recitation includes the words "with

respect to the optical axis", i.e., the reference of the symmetry or non-symmetry is a line, not a plane — if the wording were intended to refer to plane symmetry, then it would have read that "the curvatures in the main and sub-scanning directions are non-symmetrical with respect to a particular plane" and the orientation of the plane would have to be specified. See 2nd Declaration, paragraphs 4 through 10.

(2) Applicant also wishes to point out that when Takada, et al.'s specification speaks of symmetry "with respect to the optical axis", it is talking about rotational asymmetry. See MPEP 2301.03 (regarding taking the specification into consideration). In more detail, the specification states that "even with lens surfaces that vary continuously in the curvature in the sub-scanning direction, the curvatures in the main and sub-scanning directions will depend on each other if the surfaces are aspheric and symmetric with respect to the optical axis and, therefore, one cannot hold the optical magnification in the sub-scanning direction constant without a sufficient number of the degrees of freedom to achieve simultaneous correction of aberrations in both the main and sub-scanning directions" (col. 5, lines 55-64; emphasis added). Here, Takada, et al. was criticizing surfaces which are "symmetric with respect to the optical axis", i.e., where the curvature in the main scanning direction is equal to the curvature in the sub-scanning direction. See 2nd Declaration, paragraphs 11 and 12.

(3) Applicant respectfully submits that the position taken in Takada, et al.'s specification is echoed in its prosecution history. The October 5, 1998 Amendment in Takada, et al., a copy of which was attached to the August 18, 2003 Request for Reconsideration in the subject application as Tab 1, stated:

> In other words, the aspherical surface [of Yamakawa] is defined only by the distance from the optical axis no matter which direction it is. Accordingly, the aspherical surface thus defined is symmetrical around the optical axis. Namely, in Yamakawa, the curvatures in the main and sub-scanning directions must depend on each other since the curvatures are symmetrical around the optical axis.
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> In amended claim 1, as discussed above, the curvature in the sub-scanning direction can be determined independently from the curvature in the main scanning direction since the surface is not symmetrical around the optical axis.

Amendment, p. 4, lines 17-27 (double underline emphasis added).

Here again, Applicant respectfully submits, "not symmetrical around the optical axis" was being used by Takada, et al. to refer to rotational asymmetry.

(4) Lastly, and most importantly, Applicant also respectfully wishes to point out that none of Takada, et al.'s embodiments implicate any plane asymmetry. Applicant respectfully submits that the July 26, 2005 sketches indicate symmetricalities of all of the Takada, et al. embodiments (Sketches J-M) and the embodiments of the subject application (Sketches N-S). As can be seen from Sketches J-M, Takada, et al. does not contain any embodiments in which the curvatures are plane- or line-non-symmetrical. In all Takada, et al. embodiments, all curvatures are plane or line-symmetrical, and rotationally non-symmetrical. (The same applies to all of the embodiments of the subject application except for Embodiment 5 (Sketch R), wherein the curvature in the horizontal plane in the

left side is non-symmetrical with the curvature in the horizontal plane in the right side — in other words, all types of the symmetricalities of Embodiments 1 through 4 and 6 of the subject application are exactly the same as the corresponding types of the symmetricalities of the Takada, et al. embodiments.) In more detail, in Takada, et al.'s embodiments, the imaging lens has aspheric surfaces in a cross-section taken in the main scanning direction expressed by the z_i equation below, while the curvature of the imaging lens in the sub-scanning direction varies continuously along the main scanning direction over the effective area of the imaging lens and the curvature is expressed by the U_i equation below:

$$z_i = \frac{y^2 / r_{iy}}{1 + \sqrt{1 - (K_i + 1)(y / r_{iy})^2}} + A_i y^4 + B_i y^6 + C_i y^8 + D_i y^{10}$$

$$U_i = U_{ix} + A_{ix} y^2 + B_{ix} y^4 + C_{ix} y^6 + D_{ix} y^8 + E_{ix} y^{10}$$

(col. 9, lines 18-42).

From these equations and the numerical tables in Takada, et al., it can be seen that the imaging lens surfaces are rotationally asymmetric with respect to the optical axis — the radius of curvature in the plane containing the optical axis and the main scanning direction is not equal to the radius of curvature in the plane containing the optical axis and the sub-scanning direction. However, each such surface is plane symmetric with respect to the plane containing the optical axis and the main scanning direction. And each such surface is plane symmetric with respect to the plane containing the optical axis and the sub-scanning direction. Neither the embodiments nor the remainder of Takada, et al. teaches plane asymmetry for those surfaces. See 2nd Declaration, paragraphs 13 through 18. See also points (P1) - (P9), infra.

In view of the foregoing, Applicant respectfully submits that the Takada, et al. Claim 1 recitation should be read to refer to rotational asymmetry, not plane asymmetry (indeed, if the Claim 1 recitation were construed to require plane asymmetry, Applicant submits that it would be inconsistent with, and unsupported by, Takada, et al.'s specification). See 2nd Declaration, paragraphs 19 and 20.

The Takada, et al. Claim 1 recitation having been properly construed, Applicant submits that, although as pointed out in the Official Action it does not contain the term "rotationally", it nonetheless requires that feature.

Furthermore, Applicant wishes to point out that the test for interfering subject matter being present between two claims is whether each anticipates or renders obvious the other. MPEP 2301.03. Whether one claim is "narrower" than another does not end the inquiry — identical scope is not required. Even if the subject application's claims were read as being narrower than those of the patent, Applicant submits that they are not patentably distinct from the patent claims.

Accordingly, Applicant respectfully submits that interfering subject matter exists and declaration of an interference would be appropriate. 37 C.F.R. § 41.203(a).

Applicant's undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our below-listed address.

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